LISTING OF CLAIMS

The present listing of claims replaces all previous versions, and listings, of claims in the present application.

1.   (Currently amended) An electronic control unit for transmitting pulse-width-modulated data signal for communicating with an external unit comprising:

a PWM output unit for generating pulses each of which has ~~a predetermined~~ an on-period and ~~a predetermined~~ an off-period; ~~characterized by further comprising~~

a setting unit for executing an interrupt process at an edge time of each of the pulses and setting in the interrupt process a pulse-width-modulated output pattern of the data signal which is to be transmitted thereafter, wherein

the setting unit variably sets a cycle period of the pulses for each cycle of the pulses.

2.   (Currently amended) An electronic control unit as in claim 1, wherein:

the setting unit variably sets ~~at least one of a~~ both the cycle period, ~~an~~ and the on-period ~~and an off-period~~ of a next cycle of the pulses.

3.   (Canceled).

4.   (Original) An electronic control unit as in claim 1, wherein:

the PWM output unit generates an interrupt request between two successive pulses; and

the setting unit executes the interrupt process in response to the interrupt request.

5.   (Original) An electronic control unit as in claim 4, wherein:

the setting unit checks, when the interrupt request is generated, whether a response has

been received from the external unit.

6.   (Original) An electronic control unit as in claim 4, wherein:

the PWM output unit generates a dummy signal fixed to an off level and generates the

interrupt request at an imaginary edge time of the dummy signal.

7.   (Original) The electronic control unit as in claim 1, wherein:

the setting unit drives the PWM output unit to transmit the pulses in a plurality of stages

to the external unit, the pulses being codes specific to a vehicle to check whether the external unit

is authorized;

the setting unit checks whether a response from the external unit has been received at

every stage of code transmission; and

the setting unit disables a code transmission in a next stage when no response from the

external unit has been received.

8.   (Currently amended) A communication method between a vehicle and a portable

transmitter/receiver unit comprising the steps of:

transmitting, in each of a plurality of transmission stages, a transmission signal from an

in-vehicle computer having a pulse-width-modulation output unit for checking authority of the

transmitter/receiver;

generating an interrupt request each time an inquiry signal is transmitted; and

variably setting a pattern of the transmission signal in response to the interrupt request

by changing at least ~~one of~~ a cycle period~~, on period and off period~~ of a next transmission signal,

so that the variably set next transmission signal is generated from the pulse-width-modulation

output unit to the transmitter/receiver unit.

9. (Original) A communication method as in claim 8, further comprising the steps of:

transmitting a response signal from the portable transmitter/receiver unit in response to a

completion of signal transmission of each stage from the vehicle; and

stopping a transmission of transmission signals from the vehicle when no response signal

is received from the portable transmitter/receiver unit. ·

10. (Original) A communication method as in claim 8, wherein:

the transmission signal transmitting step transmits a plurality of transmission signals in

each stage; and

the pattern setting step sets the pattern of each transmission signal in each stage.

11.   (New) An electronic control unit for an electronic key entry system, comprising:

a central processing unit (CPU) for controlling communication with an electronic key by generating a data output pattern; and

·a pulse width modulation (PWM) output unit in communication with the CPU for generating communication data pulses having a predetermined on period and a predetermined off time based on the data output pattern generated by the CPU, and for generating interrupt requests for output to the CPU at respective edges of each of the communication data pulses, wherein

the CPU variably sets the data output pattern in response to each of the interrupt requests.

12.   (New) The electronic control unit of claim 11, wherein the PWM output unit is for generating the interrupt requests for output to the CPU at respective rising edges of each of the communication data pulses.

13.   (New) The electronic control unit of claim 11, wherein the PWM output unit is for generating the interrupt requests for output to the CPU at respective falling edges of each of the communication data pulses.

14.   (New) The electronic control unit of claim 11, wherein the CPU is further for maintaining a log of responses from the electronic key and continues generating the data output pattern only when the log indicates that a response has been received.